WHAT IS CLAIMED IS:

1. An optical modulator comprising:

a p- or n-type semiconductor layer that is provided at an upper part of an optical waveguide path; and

a plurality of modulating electrodes that are provided at intervals on the semiconductor layer in an extension area of the optical waveguide path,

the semiconductor layer having first regions located immediately under the modulating electrodes, and second regions located between the first regions, and

the second regions having separators that electrically separate the first regions from one another.

2. The optical modulator as claimed in claim 1, wherein the separators have a higher resistivity than the first regions.

3. The optical modulator as claimed in claim 2, wherein the separators are formed from i-type semiconductors.

4. The optical modulator as claimed in claim 2, wherein the separators are doped with at least one element selected from the group consisting of oxygen, nitrogen, boron, iron, chromium, and ruthenium.

5. The optical modulator as claimed in claim 1, wherein the separators have the opposite conductivity type to the first regions.

6. The optical modulator as claimed in claim 1, wherein the separators are depletion regions in the semiconductor layer.

7. The optical modulator as claimed in claim 6, further comprising

electrodes for applying bias voltage to the second regions,

wherein the depletion regions are formed by virtue of the bias voltage applied by the electrodes.

8. The optical modulator as claimed in claim 6, further comprising

reverse conductivity semiconductor layers that are formed on the second regions and have the opposite conductivity type to the second regions,

wherein the depletion regions are formed by pn junctions between the second regions and the reverse conductivity semiconductor layers.

9. The optical modulator as claimed in claim 1, wherein at least one of the optical waveguide path and the semiconductor layer is formed from a compound semiconductor.

10. The optical modulator as claimed in claim 9, wherein the compound semiconductor contains at least one element selected from the group consisting of gallium, arsenic, antimony, aluminum, indium, phosphorus, nitrogen, zinc, cadmium, selenium, and sulfur.

11. The optical modulator as claimed in claim 1, wherein at least one of the optical waveguide path and the semiconductor layer is formed from a silicon-based semiconductor.

12. The optical modulator as claimed in claim 11, wherein the silicon-based semiconductor contains at least one element selected from the group consisting of

silicon, germanium, and carbon.

13. A method of manufacturing an optical modulator that has a plurality of modulating electrodes provided at intervals on a semiconductor layer in an extension area of an optical waveguide path,

the method comprising the step of

forming separators in second regions situated between first regions on which the plurality of modulating electrodes are located, the separators electrically separating the first regions from one another.

14. The method as claimed in claim 13, wherein the separators have a higher resistivity than the first regions.

15. The method as claimed in claim 14, wherein the separators are formed from i-type semiconductors.

16. The method as claimed in claim 14, wherein the second regions in which the separators are to be formed are doped with at least one element selected from the group consisting of oxygen, nitrogen, boron, iron, chromium, and ruthenium.

17. The method as claimed in claim 13, wherein the separators have the opposite conductivity type to the first regions.

18. A method of manufacturing an optical modulator that has a plurality of modulating electrodes provided at intervals on first regions in an extension area of an optical waveguide path,

the method comprising the step of

forming second regions between the first regions on which the plurality of modulating electrodes are

formed, the second regions having the opposite conductivity type to the first regions.

19. A method of manufacturing an optical modulator that has a plurality of modulating electrodes provided at intervals on a semiconductor layer in an extension area of an optical waveguide path,

the method comprising the step of

forming bias electrodes in regions between first regions in the semiconductor layer on which the plurality of modulating electrodes are formed, the bias electrodes applying bias voltage.

20. The method as claimed in claim 13, wherein at least one of the optical waveguide path and the semiconductor layer is formed from a compound semiconductor.

21. The method as claimed in claim 20, wherein the compound semiconductor contains at least one element selected from the group consisting of gallium, arsenic, antimony, aluminum, indium, phosphorus, nitrogen, zinc, cadmium, selenium, and sulfur.

22. The method as claimed in claim 13, wherein at least one of the optical waveguide path and the semiconductor layer is formed from a silicon-based semiconductor.

23. The method as claimed in claim 22, wherein the silicon-based semiconductor contains at least one element selected from the group consisting of silicon, germanium, and carbon.